Volunteer Lake Assessment Program Individual Lake Reports

POST POND, LYME, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	8,320	**Max. Depth (m):**	11.6	**Flushing Rate (yr^{-1}):**	4.4
Surface Area (Ac.):	111	**Mean Depth (m):**	7	**P Retention Coef:**	0.43
Shore Length (m):	2,600	**Volume (m^3):**	3,132,500	**Elevation (ft):**	428

TROPHIC CLASSIFICATION

Year	Trophic class
1980	MESOTROPHIC
1997	MESOTROPHIC

KNOWN EXOTIC SPECIES

Eurasian Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

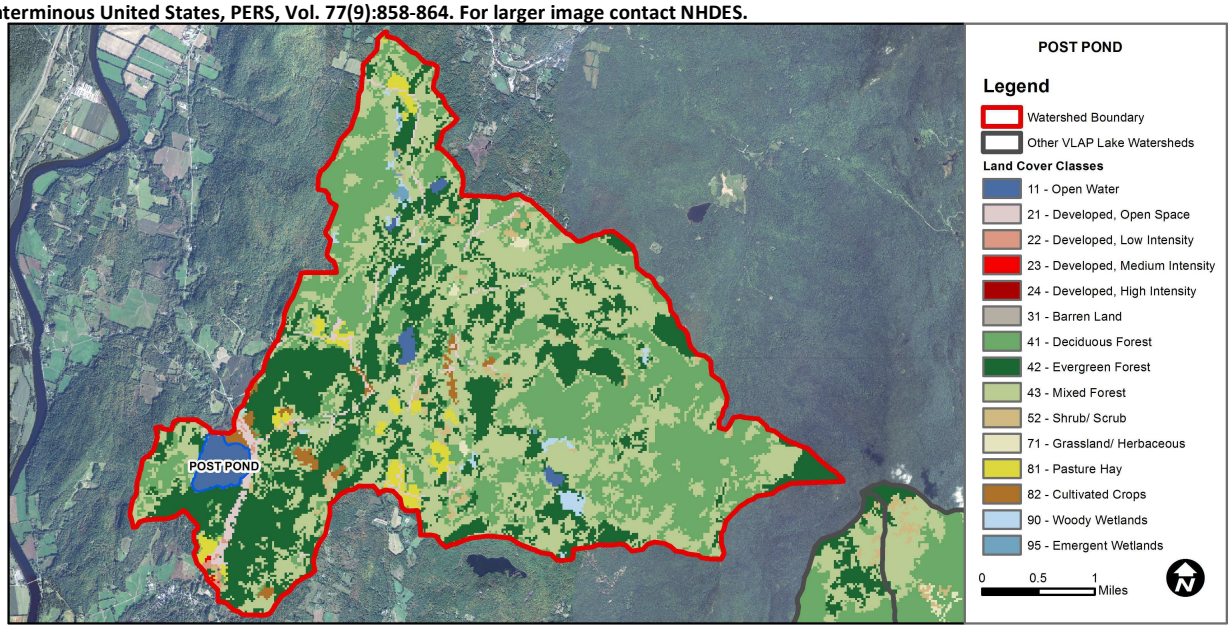
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

POST POND - CHASE TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

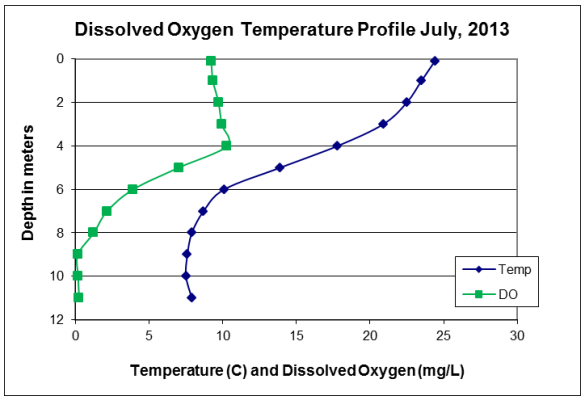


Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	1.87	Barren Land	0	Grassland/Herbaceous	0.21
Developed-Open Space	1.92	Deciduous Forest	28.68	Pasture Hay	1.94
Developed-Low Intensity	0.2	Evergreen Forest	26.1	Cultivated Crops	0.95
Developed-Medium Intensity	0.04	Mixed Forest	36.04	Woody Wetlands	0.78
Developed-High Intensity	0	Shrub-Scrub	1.08	Emergent Wetlands	0.19

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
POST POND, LYME, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were slightly elevated in July and greater than the 2012 average. Significant early summer storm events and associated stormwater runoff potentially contributed nutrients to promote algal growth. Historical trend analysis indicates high chlorophyll variability between years.
- **CONDUCTIVITY/CHLORIDE:** Conductivity levels remain slightly greater than the state median, however chloride levels were low and likely indicates a natural mineral contribution to conductivity.
- **E. COLI:** Town Beach E. coli levels were well below the state standard for public beaches.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels increased greatly from 2012 and were greater than the state median. Stormwater runoff from significant summer storm events likely contributed to the excess levels of in-lake phosphorus. Tributary phosphorus levels were low. Historical trend analysis indicates highly variable epilimnetic phosphorus between years.
- **TRANSPARENCY:** Transparency was lower in 2013 and likely a result of the increased algal growth. Historical trend analysis indicates high variable transparency between years.
- **TURBIDITY:** Metalimnetic turbidity was slightly elevated likely due to the increased algal growth.
- **PH:** Hypolimnetic pH tends to decrease below desirable range 6.5 – 8.0 units.
- **DISSOLVED OXYGEN:** Dissolved oxygen levels decreased to less than 1.0 mg/L in the hypolimnion indicating the potential for internal phosphorus loading to occur. Phosphorus may be released from bottom sediments when oxygen levels are depleted below 1.0 mg/L.
- **RECOMMENDED ACTIONS:** Epilimnetic phosphorus levels spiked in 2006 and again in 2013 following above average spring and early summer rainfall that occurred in large volume, high intensity storm events. Stormwater runoff likely contributed to the elevated phosphorus levels. It is important to educate lake and watershed residents on ways to reduce phosphorus loading during storm events. Utilize DES' "Homeowner's Guide to Stormwater Management" to implement best management practices to reduce stormwater runoff. Deep spot trend analysis indicates high data variability between monitoring years. Increasing monitoring frequency to three times per summer will help reduce this variability and better assess summer water quality conditions and trends.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Table 1. 2013 Average Water Quality Data for POST POND

Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Clay Brook Outlet				75.1		6			0.56	7.50
Epilimnion	19.4	5.28	4	75.3		13	4.20	4.20	0.59	7.35
Metalimnion				68.0		18			1.41	6.85
Hypolimnion				81.1		17			1.57	6.52
Town Beach					6					
Trout Brook			3	80.9		6			0.43	7.29

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.